## **EUROPEAN PATENT OFFICE**

## Patent Abstracts of Japan

**PUBLICATION NUMBER** 

04372931

**PUBLICATION DATE** 

25-12-92

APPLICATION DATE

24-06-91

APPLICATION NUMBER

: 03150793

APPLICANT: TOSHIBA CORP;

INVENTOR: MORI YASUSHI:

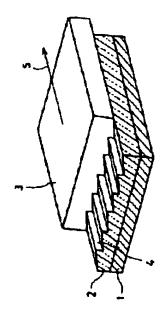
INT.CL.

: G02F 1/1337

TITLE

: MANUFACTURE OF LIQUID CRYSTAL

**DISPLAY ELEMENT** 



ABSTRACT :

PURPOSE: To realize a good orientation property of liquid crystal molecules and provide a high-quality liquid crystal display element with little occurrence of defects by pressing and moving a die with irregularities on the surface of a substrate to form grooves when forming an orientation film on the surface of the substrate.

CONSTITUTION: In the process for forming the orientation film 2 of a liquid crystal display element, a die 3 with irregularities is pressed to the surface of a substrate 1 formed with a resin film serving as the orientation film 2, fine grooves 4 are formed on the substrate 1, and the die 3 is pressed and moved in the groove direction shown by an arrow 5 to obtain the orientation film 2. When the die 3 is moved in the direction of the grooves 4, not only the orientation of the shape effect of liquid crystal molecules for the grooves 4 but also the restriction of the liquid crystal orientation by the orientation of resin molecules can be attained. When the die 3 is moved in the direction of the grooves 4, an effect similar to the rubbing effect is obtained. The generation of dust and static electricity can be reduced when the die 3 is used as compared with the rubbing processing.

COPYRIGHT: (C)1992,JPO&Japio